

## **ABSTRACT ISEE Barcelona 2011**

**Title:** Respiratory health in firefighters

**Background** The aim of the present study was to determine associations between respiratory health and exposure to smoke of fires.

### **Methods**

The studies comprised 3 subsequent stages. First, all active firefighters of the municipal fire brigades of 3 provinces in the Netherlands were invited to fill in a web-based questionnaire. Second, a randomly chosen subset of 402 firefighters underwent spirometry and methacholine provocation, and blood samples were taken to assess atopy and serum pneumoproteins. Third, 51 exposed subjects of the second stage were enrolled in the third stage of the study when they were exposed to fire smoke and a blood sample could be obtained within 24 hours post-exposure. Sputum was induced within 5 days following exposure, and after at least 24 hours more spirometry and bronchial responsiveness testing was carried out and a second blood sample was taken. After three months a third blood sample was taken. In serum pneumoproteins and cytokines were assessed.

### **Results**

Significant positive associations were found between exposure to fire smoke and respiratory health parameters (respiratory symptoms, bronchial hyperresponsiveness, serum pneumoproteins and cytokines) with and without adjustments for smoking, sex, atopy, age and main job exposure.

### **Conclusions**

The results suggest that the risk of health consequences of exposure to fire smoke is underestimated in public and occupational health. From a practical point of view, reduction of exposure to fire smoke could be achieved relatively easy when first responders are instructed about these health consequences and how to reduce fire smoke exposure.